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TUMORIALA, A NEW NEOTROPICAL PHYCITINE GENUS (LEPIDOPTERA: PYRALIDAE)

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Abstract.—***Tumoriala* n. gen.,** is proposed for the Neotropical phycitine *T. subaquilella* (Ragonot 1888), **n. comb.** The previously unknown male is described and the occurrence of this species in Costa Rica and Brazil is reported for the first time. Males in the genus are characterized by a unique, raised cluster of scales on the upper surface of the forewing, and slender genitalia with a tegumen bearing earlike lobes. Females have a strongly developed diverticulum about midway on the ductus bursae. Photographs of the adults, and line drawings of male wing venation, labial palpus and antenna, and male and female genitalia are included.

Key Words: Phycitinae, Guatemala, Costa Rica, Brazil

During an ongoing study of the Phycitinae of the Neotropics, we discovered males of the species *Hyalospila subaquilella,* Ragonot 1888, previously known only from the female type specimen. Heinrich (1956), following a study of the genitalia of the type, moved *subaquilella* to his genus *Peadus,* with the caveat "The generic placement is tentative, pending discovery of a male." Males have a slightly-protuberant, oval tuft of specialized scales on the upper surface of the forewing (Figs. 1–2, 4) not seen previously in the Phycitinae, and unique genitalia, particularly with regard to the tegumen (Fig. 7); therefore, because of these features, as well as others, the species cannot remain in *Peadus.* Here we place *subaquilella* in the new genus *Tumoriala.*

Abbreviations used for depositories of types and other specimens are as follows: Instituto de Biodiversidad, Santo Domingo, Costa Rica [INBio]; North Carolina State University, Raleigh, North Carolina, USA [NCSU]; Essig Museum, the University of California at Berkeley, California, USA [UCB]; National Museum of Natural History, Smithsonian Institution, Washington, D. C., USA [USNM]; The Natural History Museum, London, England [BMNH].

Tumoriala Neunzig and Solis, new genus

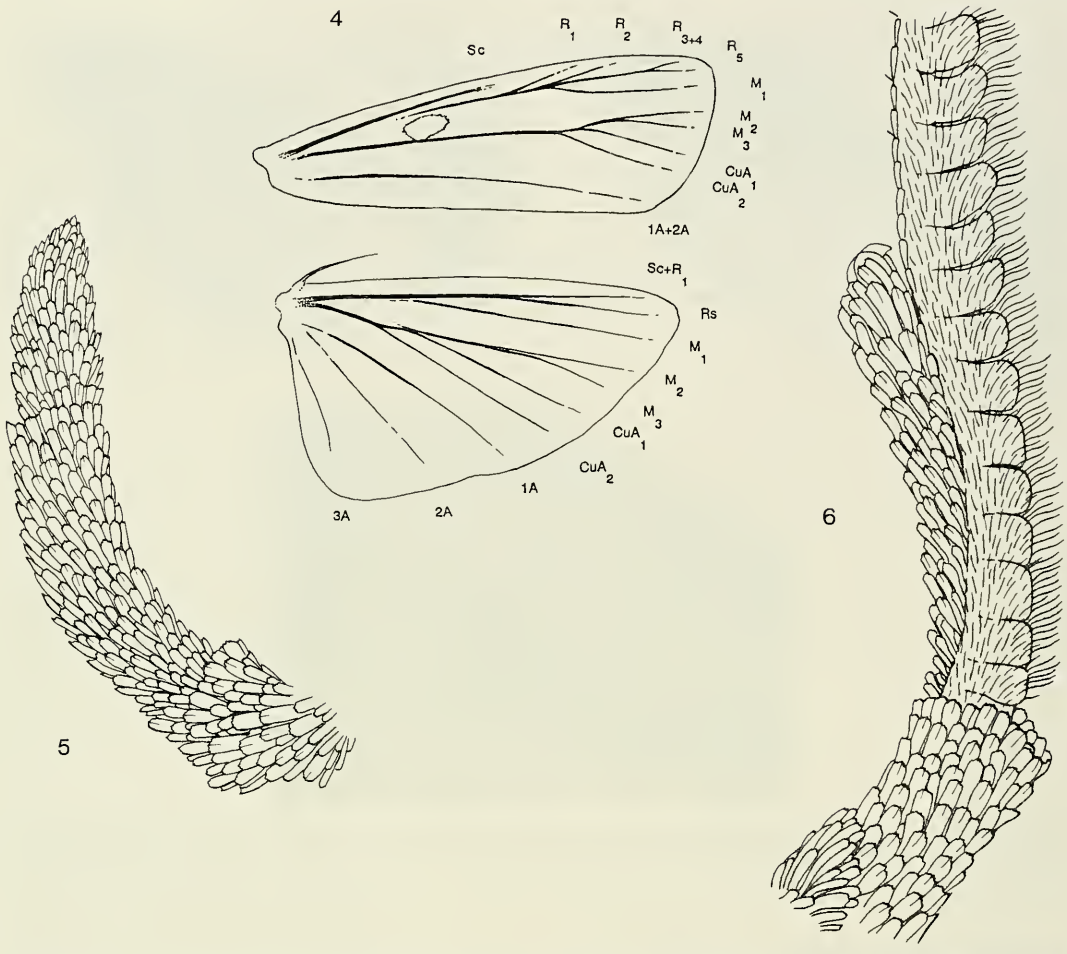
Type species.—*Hyalospila subaquilella* Ragonot 1888.

Diagnosis.—The male bears a unique, raised, oval cluster of many, small scales on the upper surface of the forewing (Figs. 1–2, 4) and its genitalia are slender with large, earlike, lateral lobes projecting posterolaterally from the tegumen (Fig. 7). The female has a pronounced, well-sclerotized diverticulum about midway on one side of the ductus bursae (fig. 9; see also Heinrich, 1956: Fig. 753).

Description.—*Antenna* (Fig. 6): Shaft of male with shallow sinus basally and associated tuft of scales; tuft weak basally, be-

Figs. 1–3. Dorsal view of male and female *Tumoriala subaquilella*. 1, Male habitus. 2, Enlarged view of raised, cluster of scales on male forewing. 3, Female habitus.

coming gradually stronger distally; shaft beyond scale tuft serrate; sensilla trichodea (cilia) about ¾ length of diameter of shaft at sinus. *Frons and vertex:* Rough-scaled in both sexes. *Labial palpus* (Fig. 5): Upturned in both sexes, reaching above vertex. *Maxillary palpus:* Short-scaled in both sexes. *Haustellum:* Well-developed in both sexes. *Ocellus:* Present in both sexes. *Forewing:* Male with raised, oval, pale cluster of many, small scales at about ⅓ distance from wing base on upper surface of wing (Figs. 1–2); wing with 11 veins (Fig. 4); R_{3+4} and R_5 stalked for about ⅔ distance beyond cell; M_1 from anterodistal angle of cell; M_2 and M_3 fused at base for about ⅓ distance beyond cell; CuA_1 from posterodistal angle of cell; CuA_2 from slightly before posterodistal angle of cell. *Hindwing* (Fig. 4): Simple, with 8 veins (1A, 2A, and 3A together treated as one vein); Sc + R_1 and Rs contiguous or fused for about ½ distance beyond cell; CuA_1 from posterodistal angle of cell; CuA_2 from well before posterodistal angle of cell. *Male:* Abdominal segment 8 simple. *Male genitalia* (Figs. 7–8): Slender; uncus triangular, weakly developed, rounded apically; gnathos distally with pair of diverging, seta-bearing lobes; transtilla with medial pair of fingerlike projections; tegumen produced posterolaterally into large, earlike lobes (lobes larger than uncus); juxta a V-shaped plate with short, setiferous, lateral protuberances; valva tripartite, consisting of slender, seta-bearing members (sacculus with cluster of slightly broadened setae at base); aedoeagus simple; vesica with microspines and sclerotized



Figs. 4–6. Wings, antenna and labial palpus of male *Tumoriala subaquilella*. 4, Right forewing and hindwing (the oval outline on the forewing shows the location of the raised cluster of scales on the upper surface of the forewing). 5, Left labial palpus, lateral view. 6, Left antenna, frontal view.

plate; vinculum small, slightly longer than greatest width. *Female genitalia* (Fig. 9): Ostium bursae simple; ductus bursae with large, rounded, heavily sclerotized, anterolaterally-projecting diverticulum near its middle; corpus bursae with microspines in posterior half and with signum a small, thornlike spine; ductus seminalis attached to corpus bursae near signum.

Etymology.—The genus name is a combination of the Latin *tumor* (a swelling or elevation) and the Latin *ala* (wing) referring to the unusual, elevated scale tuft on the male forewing. The gender of *Tumoriala* is feminine.

Tumoriala subaquilella (Ragonot), **new combination**
(Figs. 1–9)

Hyalospila subaquilella Ragonot 1888:11.
Peadus subaquilellus (Ragonot): Heinrich 1956:84.

Type locality.—Cerro Zunil, Guatemala.

Note.—The type [BMNH] from Guatemala was not examined, but Heinrich's figure of the female genitalia of the type (1956: fig. 753), and Ragonot and Hampson's color habitus illustration (1901: plate XXXVIII: fig. 24) leave no doubt as to the identity of *subaquilella*.

Description.—*Head:* Frons and vertex white to ochre and brownish red; labial palpus outwardly white to ochre and brownish red to black; maxillary palpus mostly white to ochre, brownish red to black basally. *Thorax:* Dorsum of prothorax purple to dark purple, ochre mesially; tegula brownish red to purple. *Forewing:* Length 7.5–10.0 mm; mostly brownish red to dark purple; anterior half of wing in some specimens very lightly dusted with white; raised cluster of scales on wing of male chiefly pale brown; posterior half of wing, near margin, with white or pale ochre and pale brownish red longitudinal streak in some specimens; antemedial line, postmedial line and discal spots absent; some specimens with wing mostly brownish red with dark brown to dark purple streaks between veins on posterior half of wing. *Hindwing:* somewhat hyaline, but brown to dark brown on veins and margins of wing. *Male and female genitalia:* As described for genus.

Material examined.—COSTA RICA: CARTAGO PROVINCE: 1 ♀, Paraíso, P. N. Tapanti-Macizo de la Muerte, del Puente del Rio Porras, 1,660 m., Nov. 2001, R. Delgado, LN 186550, #65804, INBio CR 0003401590 [INBio]; 1 ♀, Paraíso, P. N. Tapanti-Macizo de la Muerte, 0.3 km. W. del Mirador, 1,350 m., Jul. 2000, R. Delgado, LN 191100560650, #57138, INBio CR 0003145304 [INBio]. GUANACASTE PROVINCE: 3 ♂, Est. Pitilla, 9 km. S. Santa Cecilia, 700 m., Oct. and Nov. 1994, C. Moraga, LN 330200 380200, INBio CR I002035227, INBio I002041482, INBio CR I002041480, genitalia slides 2035227 MC, 2041482 MC [INBio]; 2 ♀, Est. Pitilla, 9 km. S. Santa Cecilia, 700 m., Feb. and July, 1991, 1995, P. Rios, C. Moraga, LN 329950 380450, INBio CR I002135373, INBio CR I000599222, genitalia slide 2135373 MC [INBio]. PUNTARENAS PROVINCE: 1 ♂, Monteverde, 15–16 May 1980, D. H. Janzen & W. Hallwachs, INBio CR I002043394, genitalia slide 107, 755 DA [USNM]; 1 ♂, 2 km. E. Monteverde, 1,500 m., VII-24–90, Meredith and Powell, genitalia slide 4855 HHN [NCSU]; 2 ♀, 2 km. E. Monteverde, 1,500 m., VII-24–90, Meredith and Powell, genitalia slide 4856 HHN [NCSU]; 4 ♂, Estac. Biol. Las Alturas, 1550 m., 12 air km. NE San Vito, I-22/24–1993, J. Powell, genitalia slides 4861, 4862 HHN [UCB]; 4 ♀, Estac. Biol. Las Alturas, 1,550 m., 12 air km. NE San Vito, I-22/24–1993, J. Powell, genitalia slides 4863, 4864 HHN [UCB]. SAN JOSÉ PROVINCE: 1 ♀, Braulio Carrillo, 1,100 m., VIII 1981, V. O. Becker, genitalia slide 4929 HHN [NCSU]; 1 ♀, La Montura, Braulio Carrillo Nat. Pk., 1,100 m., 17 Dec. 1981, D. H. Janzen & W. Hallwachs, INBio CR I002043895, genitalia slide 107, 756 DA [USNM]. BRAZIL: STATE OF RIO DE JANEIRO: 1 ♂, Pq. Nat. Itatiaia, 2,400 m., 18 X 1985, V. O. Becker, genitalia slide 4600 HHN [NCSU]; 3 ♂, 1 ♀, Itatiaia, 1,700 m., 18 Oct. 1985, Scott Miller [USNM].

Remarks.—A comparison of *Tumoriala* and *Peadus* shows that *Tumoriala* males have a conspicuous tuft of scales at the base of the antenna (Fig. 6), the gnathos is well developed and bears apically a pair of lobes (Fig. 7), the tegumen has large, lateral lobes (Fig. 7), the transtilla is present (Fig. 7), and females lack sclerotized plates dorsad of the ostium bursae and have a large anterolaterally projecting diverticulum on the ductus bursae (Fig. 9), whereas, *Peadus* males lack an antennal scale tuft, lack or have a weakly developed gnathos, have a tegumen that is greatly reduced, lack a transtilla, and females have well developed sclerotized plates near the ostium bursae, and are without a anterolaterally projecting diverticulum on the ductus bursae.

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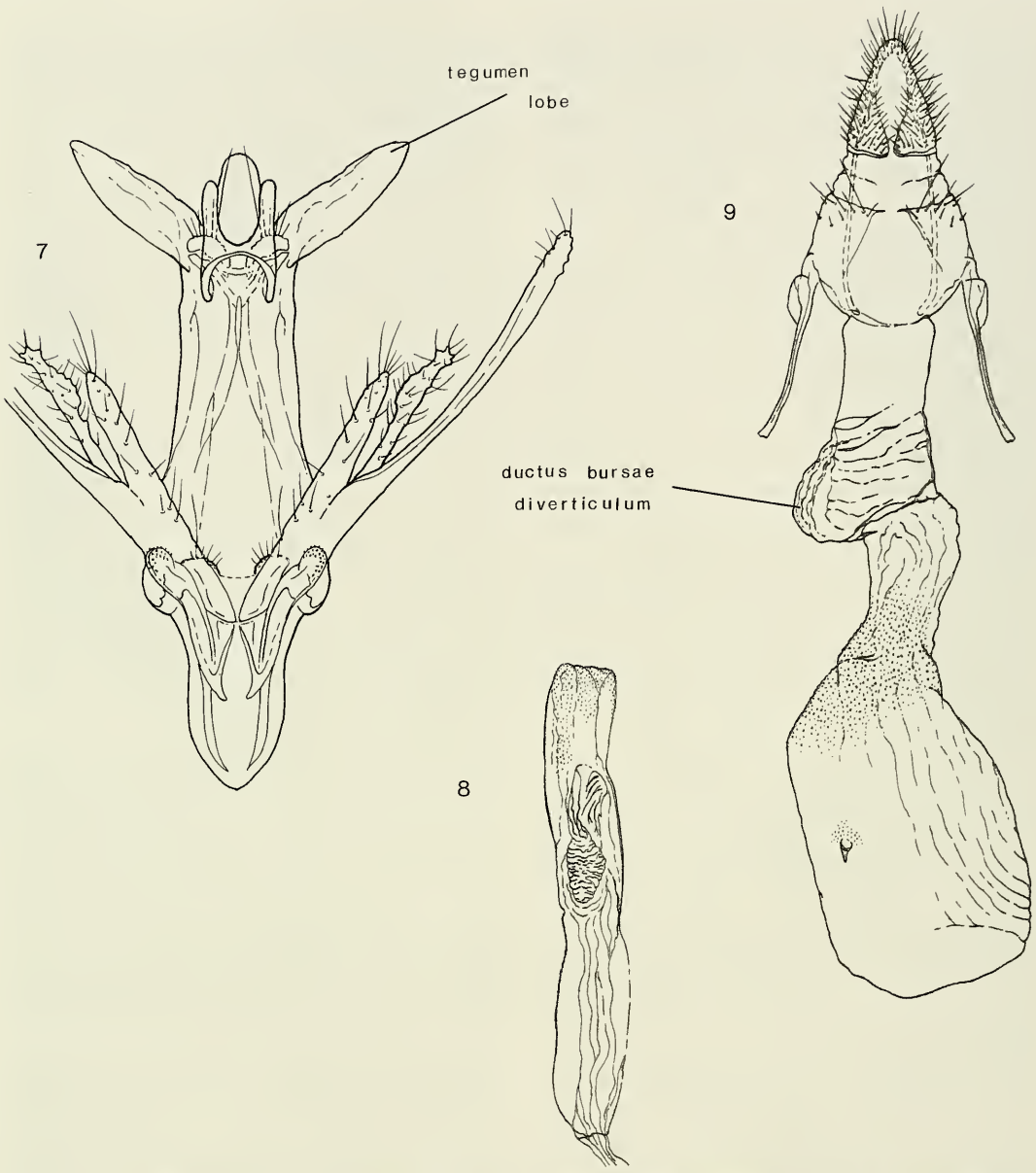

Figs. 7–9. Genitalia of *Tumoriala subaquilella*, ventral view. 7, Male, aedoeagus and setae at base of sacculus omitted. 8, Aedoeagus. 9, Female.

Some of the genitalia slides were prepared by D. Adamski, Systematic Entomology Laboratory, Washington, D. C., USA, and M. Camacho, Instituto Nacional de Biodiversidad, Santo Domingo Costa Rica. R. L. Blinn, North Carolina State University, Raleigh, North Carolina, USA, made the photographs. An initial draft of the paper was reviewed by L. L. Deitz and D. L. Stephan, both of North Carolina State University. Additional suggestions for improvement were given by S. H. McKamey and D. R. Smith, both of the Systematic Entomology Laboratory, ARS, USDA, and J. C. Shaffer, George Mason University, Fairfax, Virginia.

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